YIELD AND CHEMICAL COMPOSITION OF ESSENTIAL OIL IN GERANIOL BEARING LARGE THYME (*THYMUS PULEGIOIDES*)

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Thymus pulegioides L. is essential oil bearing medicinal and aromatic plant. Essential oil of geraniol chemotype of this species contains biologically active terpene alcohol geraniol with sweet rose aroma, therefore this essential oil is used for manufacturing of pharmaceuticals, products of perfume and cosmetic [1]. This species can be cultivated at not controlled (or semi controlled) environmental conditions, i. e. in open ground. Therefore it is very important to determine influence of meteorological conditions on *T. pulegioides* essential oil composition, in order to select the most favourable locations and conditions for cultivation. The aim of the present study was to evaluate the effects of meteorological conditions on the percentage of essential oil and geraniol in different individuals of *T. pulegioides* geraniol chemotype.

Two individual plants of *T. pulegioides* (No.1 and No.2), belonged to geraniol chemotype, were vegetative propagated and grown in the field collection of the Nature Research Centre (Mažieji Gulbinai near Vilnius, Lithuania) (N 54°46´ and E 25°17´, altitude 97 m) in 2014–2017. Plants were grown in separate square plots of 1.4 m^2, (nine sub-individuals in every plot), in the open ground under the same environmental conditions. Ground parts of *T. pulegioides* were collected separately at the full flowering stage annually and dried at room temperature. The essential oils of leaves-inflorescences were isolated by hydrodistillation in a Clevenger type apparatus during two hours. The analysis of essential oils and identification of geraniol, nerol, geranial and neral was carried out using a FOCUS GC (Thermo Scientific) gas chromatograph with a flame ionisation detector (FID) and a GC-2010 Plus instrument equipped with a GC-QP 2010 Plus (Shimadzu) series mass selective detector. Temperature (C°), precipitation (mm), photosynthetically active solar radiation (Mj/m^2) and sunshine duration (h) of April, May, June and July in 2014–2017 were obtained from the meteorological bulletins of closest station of meteorology of Lithuanian Hydrometeorological Service under the Ministry of Environment.

Results showed that same meteorological conditions can otherwise influence on accumulation of essential oil in different individuals of same chemotype of *T. pulegioides*. It could be related with genetical differences of individuals. Effect of same meteorological condition was more alike on geraniol percentage of both *T. pulegioides* samples than on essential oil: trends of effect of 6 meteorological factors (from 8) on geraniol percentage coincided in both *T. pulegioides* samples.

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[1] B.M. Lawrence, A.O. Tucker, The genus *Thymus* as a source of commercial products, In: E. Stahl-Biskup, F. Sáez (eds) *Thyme*. The genus *Thymus*. Taylor and Francis, London and New York, England and U. S., pp 330 (2002).